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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,098	12/21/2005	Takashi Ito	9369-114US (T37-196236C)	8148
570 7590 06/29/2007 AKIN GUMP STRAUSS HAUER & FELD L.L.P. ONE COMMERCE SQUARE 2005 MARKET STREET, SUITE 2200 PHILADELPHIA, PA 19103			EXAMINER EOFF, ANCA	
			ART UNIT	PAPER NUMBER
			1753	
			MAIL DATE	DELIVERY MODE
			06/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,098

Applicant(s)

ITO ET AL.

Examiner

Anca Eoff

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/21/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Status

1. Claims 1-8 are pending in the application.

Specification

2. The abstract of the disclosure is objected to because the second paragraph of the abstract comprises the terms "photo cationic polymerization inhibitor" and "photo radical polymerization inhibitor". These terms should be replaced with "photo cationic polymerization initiator" and "photo radical polymerization initiator" respectively.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

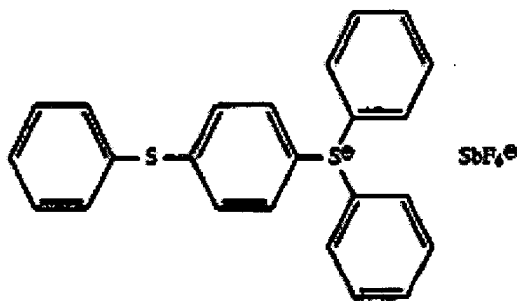
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by Schulthess (US Patent 5,783,358) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schulthess (US Patent 5,783,358) in view of Date et al. (WO 02/48101, wherein the citations are from the US equivalent document, US Pg-Pub 2004/0030158 *).

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With regard to claims 1-4, Schulthess et al. disclose a hybrid system, a composition which contains at least one compound which can be cured by means of free radicals and a free-radical polymerization photoinitiator which is suitable therefore, as well as cationically curable components (column 8, lines 18-22). In this case, the cationically curable components are a cationically polymerizable compound and a photoinitiator for cationic polymerization (column 7, lines 56-59).

Schulthess et al. specifically discloses a composition for stereolithography based on epoxy resins as cationically polymerizable compounds, a sulfonium salt of formula (1)



(1)

as photoinitiator for cationic polymerization and further constituents which can be polymerized by means of free radicals (hybrid system) (column 14, lines 33-49).

The compound of formula (1) above is the same compound with the one in formula (I) of the instant application, when M is an antimony atom, so it meets the limitations of claims 1 and 4.

In the absence of a record to prove the contrary, it is the examiner's position that the photoinitiator for cationic polymerization (compound of formula (1) above) of Schulthess et al. has a purity of 100%.

In the alternative, it would have been obvious for one of ordinary skill in the art to use the sulfonium salts with a purity of 96% obtained in the process of Date et al. as photocationic polymerization initiators in the composition of Schulthess et al., since Date et al. specifically indicate this use for the high-purity sulfonium salts (Date et al., par.0045 and par.0062).

With regard to claim 5, Schulthess et al. further disclose that the cationically polymerizable compound can be an epoxy resin having on average more than one 1,2-epoxide group in the molecule (column 4, lines 59-61).

With regard to claim 6, Schulthess et al. further disclose that the compounds which can be polymerized by means of free radicals are monoacrylates, diacrylates and polyacrylates having an acrylate functionality of up to 9 or the corresponding methacrylates (column 8, lines 32-36).

5. Claims 1-8 are rejected under 35 U.S.C. 102(e) as anticipated by Steinmann (US Pg-Pub 2004/0137368) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Steinmann (US Pg-Pub 2004/0137368) in view of Date et al. (WO 02/48101, wherein the citations are from the US equivalent document, US Pg-Pub 2004/0030158 *).

With regard to claims 1-4, Steinmann discloses a radiation-curable composition useful for the production of three dimensional articles by stereolithography comprising:

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- (A) at least one cationically polymerizing organic substance;
- (B) at least one free-radical polymerizing organic substance;
- (C) at least one cationic polymerization initiator;
- (D) at least one free-radical polymerization initiator (par.0023-0027).

As cationic polymerization initiator, Steinmann discloses the compound UVI 6974 from Union Carbide (par.0077), which contains (4-phenylthiophenyl) diphenylsulfonium hexafluoroantimonate.

The (4-phenylthiophenyl) diphenylsulfonium hexafluoroantimonate is the same compound with the one in formula (I) of the instant application, when M is an antimony atom, so it meets the limitations of claims 1 and 4.

In the absence of a record to prove the contrary, it is the examiner's position that the cationic polymerization initiator ((4-phenylthiophenyl) diphenylsulfonium hexafluoroantimonate) of Steinmann has a purity of 100%.

In the alternative, it would have been obvious for one of ordinary skill in the art to use sulfonium salts with a purity of 96% obtained in the process of Date et al. as photocationic polymerization initiators in the composition of Steinmann, since Date et al. specifically indicate this use for the high-purity sulfonium salts (Date et al., par.0045 and par.0062).

With regard to claim 5, Steinmann further discloses that the cationically polymerizable compound can be an epoxy cresol novolac, epoxy phenol novolac compound, which possess more than one epoxide group in the molecule (par.0048).

With regard to claim 6, Steinmann further discloses that the free radically curable component preferably comprises at least one poly(meth)acrylate, for example di-, tri-, tetra-, or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic acrylates or methacrylates (par.0064).

With regard to claim 7, Steinmann discloses that the radiation-curable composition further comprises at least one hydroxyl-functional oxetane compound (F) (par.0023-par.0029).

In Example 1 (table 2, par.0151), Steinmann specifically discloses that 3-ethyl-3-hydroxymethyl-oxetane (Cyracure UVR 6000, in table 1, par.0143) is comprised in the radiation-curable composition at a ratio of 26.78 wt.% with respect to the 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate (Cyracure UVR 6110, in table 1, par.0143).

With regard to claim 8, Steinmann discloses that the radiation-curable composition further comprises at least one hydroxyl-functional compound (E) (par.0023-par.0028), such as polypropylene glycols of various molecular weights (par.0094), glycerine propoxylated polyether triol and polyethyleneglycols (par.0103). These compounds are equivalent to the polyalkylene ether compounds of the instant application.

In Example 1 (table 2, par.0151), Steinmann specifically discloses that glycerine propoxylated polyether triol (Voranol CP 450 in table 1, par.0143) is comprised in the radiation-curable composition at a ratio of 17.85 wt.% with respect to 3,4-

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epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate (Cyracure UVR 6110, in table 1, par.0143).

* translation of WO 02/48101 is underway.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thommes et al. (US Pg-Pub 2003/0149124) disclose a hybrid system, which means that the resin composition contains both radically and cationically polymerizable components and also radical and cationic photoinitiator.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-5:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Barbara Gilliam
BARBARA GILLIAM
PRIMARY EXAMINER